Activity Title: Seabird Facebook Page & Life size Model Presentation

Subject (Focus/Topic): Students will research different physical characteristics, behaviors, and ecological threats for one seabird and use this research to develop a Facebook page and a life size model of their seabird.

Grade Level: High School (Grades 9-12)

Average Learning Time: 1 week or (5) 55 minute class periods

Lesson Summary (Overview/Purpose): Students will research one local seabird, create a Facebook page and a life size model of their seabird using recycled materials, and present both to a team of judges.

Overall Concept (Big Idea/Essential Question): Students will understand the large variety of local seabirds and the environmental threats they face.

Specific Concepts (Key Concepts): Students will learn about breeding, vocalization, feeding, and nesting habits for local seabirds. In addition, students will gain an understanding of the diversity between seabirds by creating a model of their seabird and comparing it to their classmates. Finally, students will practice public speaking skills by presenting the Facebook Page and their model to a group of judges.

Focus Questions (Specific Questions):

1. What seabirds live off our coast?
2. How are seabirds different?
3. How are humans impacting local seabirds?
4. What can be done to improve seabird populations?

Objectives/Learning Goals: Students will create a Facebook Page from the online research in twelve categories about one seabird species. Students will create a life size model of their seabird from recycled materials using the length and wingspan measurements from their research. Students will present both the Facebook Page and the model to a group of judges and will be able to explain all 5 topics about their seabird.

Background Information: It is important to explain the difference between a land bird and a seabird before beginning the project. In addition, students tended to give up after looking at two websites. I would encourage students to look at five different websites before asking for help.

Common Misconceptions/Preconceptions: Students didn't know the term fledging before we started the project. I would review this term and show an example during the introduction of the project.

Materials:

1. Laptops with internet connection
2. Recycled materials (plastic bottles, fabric, cans, etc.)
3. Hot Glue Guns and Glue
4. Tape
5. Poster Paper

Technical Requirements: It is important that students have access to a laptop or computer with wifi connection to research their seabird.

Teacher Preparation:

1. Email Community Experts to inquire about being a judge for the final presentations
2. Reserve the computer lab or laptop cart
3. Make copies of the seabird research packet
4. Create an example to share with students
5. Collect recycled items

Keywords:

1. Fledging
2. Conservation Status
3. Threats
4. Range

Pre-assessment Strategy/Anticipatory Set (Optional): NA

Lesson Procedure: List the specific steps to follow in order to teach the lesson.

1. Introduce the project and show the example project
2. Students to select a seabird
3. Students research their seabird online and begin to complete the seabird research handout
4. Students create a model of a Facebook Page for their seabird
5. Students build a life size model of their seabird from mostly recycled materials
6. Students present their seabird's Facebook page and life size model to a group of judges

Assessment and Evaluation: *I assessed the students a few different ways during the project. Students worked on the seabird research online and recorded their information on a google document. This allowed me to give them continuous feedback during the research project. Next, before students began their Facebook page I reviewed their research and gave the okay to move ahead. The research handout was grade for completion and accuracy. Next I used a rubric for the judges to grade their presentations. Each student had a least three judges review their project and then I averaged the scores from the judges. Finally, I graded their seabird models using another rubric for creativity and accuracy.*

Standards:

- **National Science Education Standard(s) Addressed:**
    - The Interdependence of Organisms
        - Organisms both cooperate and compete in ecosystems. The interrelationships and interdependencies of these organisms may generate ecosystem that are stable for hundreds or thousands of years.
        - Human beings live within the world's ecosystems. Increasingly, humans modify ecosystems as a result of population growth, technology, and consumption. Human destruction of habitats through direct harvesting, pollution, atmospheric changes, and other factors is threatening current global stability, and if not addressed, ecosystems will be irreversibly affected.

- **Ocean Literacy Principles Addressed:**
  http://www.coexploration.org/oceanliteracy/documents/OceanLitChart.pdf
    - 4: The ocean made Earth habitable.
        - b The ocean is the cradle of life; the earliest evidence of life is found in the ocean. The millions of different species of organisms on Earth today are related by descent from common ancestors that evolved in the ocean and continue to evolve today.
    - 5 The ocean supports a great diversity of life and ecosystems.
        - a: Ocean life ranges in size from the smallest living things, microbes, to the largest animal on Earth, blue whales.
        - c: Most of the major groups that exist on Earth are found exclusively in the ocean and the diversity of major groups of organisms is much greater in the ocean than on land.
        - d: Ocean biology provides many unique examples of life cycles, adaptations, and important relationships among organisms (symbiosis, predator-prey dynamics, and energy transfer) that do not occur on land.
        - e: The ocean provides a vast living space with diverse and unique ecosystems from the surface through the water column and down to, and below, the seafloor. Most of the living space on Earth is in the ocean.
        - f: Ocean ecosystems are defined by environmental factors and the community of organisms living there. Ocean life is not evenly distributed through time or space due to differences in abiotic factors such as oxygen, salinity, temperature, pH, light, nutrients, pressure, substrate, and circulation. A few regions of the ocean support the most abundant life on Earth, while most of the ocean does not support much life.
    - 6 The ocean and humans are inextricably interconnected.
    - d: Humans affect the ocean in a variety of ways. Laws, regulations, and resource mangement affect what is taken out and put into the ocean. Human development and activit leads to pollution, changes to ocean chemistry, and physical modifications. In addition, humans have removed most of the large vertebrates from the ocean.
    - g: Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.
- **State Science Standard(s) Addressed:**
    - Ecology
        - 6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:
            - a. Students know biodiversity is the sum total of different kinds of organisms and is affected by alterations of habitats.

- b. Students know how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species, or changes in popula-tion size.

- **Other National or State Standards Addressed (Optional)**

Additional Resources: List any books, articles, Web sites, videos, etc. that may enhance this lesson for students, teachers, parents/guardians or others.

1. **Seabird Research Handout** https://docs.google.com/document/d/1YvvRcrux03SGQ2UhugfX__bgCSza3Az20DGSQBzO520/edit
2. **Seabird Websites**
    a. Wikipedia
    b. http://www.allaboutbirds.org/
    c. http://www.audubon.org/
3. **Seabird Model Rubric** https://docs.google.com/document/d/1Mg8vGY8NW3D9N_pK-i9LPNSQtgAZSVIzdEvX6apYNNs/edit
4. **Seabird Presentation Rubric for Judges** https://docs.google.com/document/d/19H5Qd47eD6uh_rwew-NY8nvbGa3yCJYjOdX82EeTTJw/edit

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California Seabird Research Project

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California Seabird Choices (1/student)

Sooty Shearwater	**Black-Footed Albatrosses**	**Ashy Storm-petrel**	**Common Murre**	**California Brown Pelican**	**Western Gull**
Marbled Murrelet	**California least Tern**	**Tufted Puffin**	**American Coot**	**Ancient Murrelet**	**Arctic Loon**
Black Scoter	**Black Storm-Petrel**	**Black-Legged Kittiwake**	**Black-vented Shearwater**	**Boneparte's Gull**	**Brandt's Cormorant**
Brewer's Sparrow	**Brown Booby**	**California Gull**	**Caspian Tern**	**Cassin's Auklet**	**Clark's Grebe**
Common Loon	**Common Tern**	**Cook's Petrel**	**Craveri's Murrelet**	**Double-Crested Cormorant**	**Eared Grebe**
Elegant Tern	**Flesh-Footed Shearwater**	**Fork-Tailed Storm Petrel**	**Forster's Tern**	**Franklin's Gull**	**Glaucous Gull**
Glaucous-winged Gull	**Heermann's Gull**	**Horned Puffin**	**Laughing Gull**	**Laysan Albatross**	**Leach's Storm Petrel**
Least Storm-Petrel	**Thayer's Gull**	**Long-Tailed Jaeger**	**Mew Gull**	**Mottled Petrel**	**Mourning Dove**
Murphy's Petrel	**Northern Fulmar**	**Pacific Loon**	**Parakeet Auklet**	**Parasitic Jaeger**	**Parkinson's Petrel**
Pelagic Cormorant	**Peregrine Falcon**	**Pigeon Guillemot**	**Pink-Footed Shearwater**	**Pomarine Jaeger**	**Red Phalarope**
Red-billed Tropicbird	**Red-necked Phalarope**	**Red-Tailed Tropicbird**	**Red-Throated Loon**	**Rhinoceros Auklet**	**Ring-billed Gull**
Royal Tern	**Ruddy Duck**	**Sabine's Gull**	**Snow Goose**	**South Polar Skua**	**Stejneger's Petrel**
Streaked Shearwater					

California Seabird Research

Name:

- **Kingdom:**
- **Phylum:**
- **Class:**
- **Order:**
- **Family:**
- **Subfamily:**
- **Genus:**
- **Species:**

Picture of a Male:

- **Length (cm):**
- **Wingspan (cm):**
- **Weight (g):**

Picture of a Female:

- **Length (cm):**
- **Wingspan (cm):**
- **Weight (g):**

Difference in coloration between the male and the female:

Picture of a Juvenile:

Nesting Sites: **Nest Location:**

Number of Eggs: **Age of Fledging:**

Range Map:

When is your seabird in the bay area?

Food Source: Adults:

Conservation Status:

Threats:

Cool Facts:

Websites Used:

California Seabird Research Example

Name: Surf Scoter

- **Kingdom: *Animalia***
- **Phylum: *Chordata***
- **Class: *Aves***
- **Order: *Anseriformes***
- **Family: *Anatidae***
- **Subfamily: *Merginae***
- **Genus: *Melanitta***
- **Species: *Melanitta perspicillata***

Picture of a Male:

- **Length (cm): 48- 60**
- **Wingspan (cm): 77**
- **Weight (g): 953-1769**

Picture of a Female:

- **Length (cm): 48- 60**
- **Wingspan (cm): 77**
- **Weight (g): 953-1769**

Difference in coloration between the male and the female: The male has more bright colors than the female especially around the face. The feathers on the body are also darker on the male than the female.

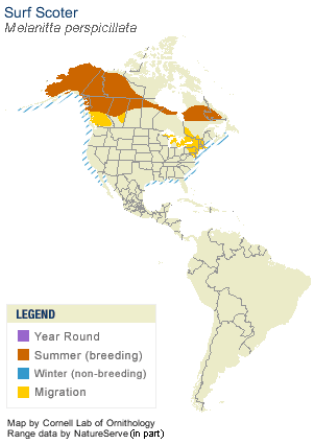
Picture of a Juvenile:

Nesting Sites: Canada & Alaska

Nest Location: Lined nests on the ground close to the sea, lake, or rivers in a woodland or tundra

Number of Eggs: 5-9 **Age of Fledging: 55 days**

Range Map:



When is your seabird in the bay area? Surf scoters spend the winter in the bay area when they aren't breeding.

Food Source: Adults: crustaceans and molluscs, ducklings: freshwater invertebrates

Conservation Status: Least Concern

Threats: During the oil spill in 2007 in San Francisco, 40% of the seabirds killed were surf scoters.

Cool Fact: Surf scoters breed on freshwater lakes. The make defends an area around the female.

Websites Used: http://en.wikipedia.org/wiki/Surf_Scoter, http://www.allaboutbirds.org/guide/Surf_Scoter/id,

http://padillabay.gov/researchselectedAnderson.asp

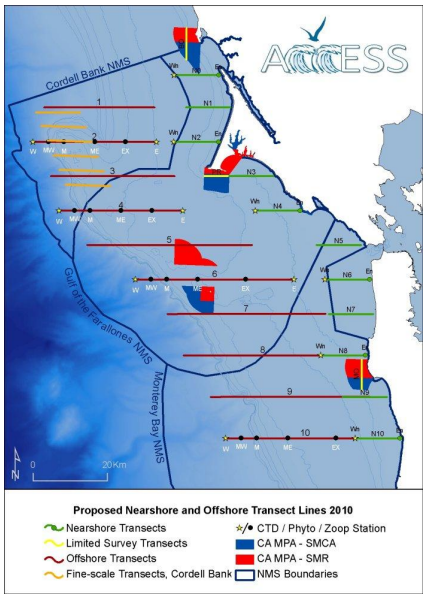
Seabird Map in the National Marine Sanctuaries

1. **Go to http://data.prbo.org/cadc/tools/multimap/aocean.php**
2. **Select ACCESS as the Data Source**
3. **Select May 2010 for the Time Parameters**
4. **Select your seabird for the species**
5. **Color in on the map where your seabird was spotted in the National Marine Sanctuaries**
6. **Repeat for the additional months below**

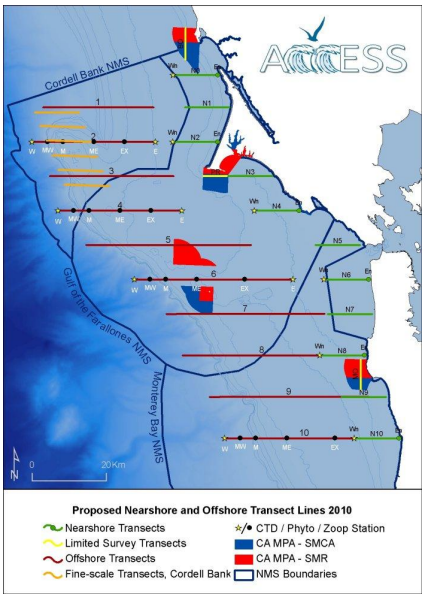
Analysis

7. What patterns do you see in your seabird sightings in our local National Marine Sanctuaries?
8. Explain the pattern you see using evidence from your research.

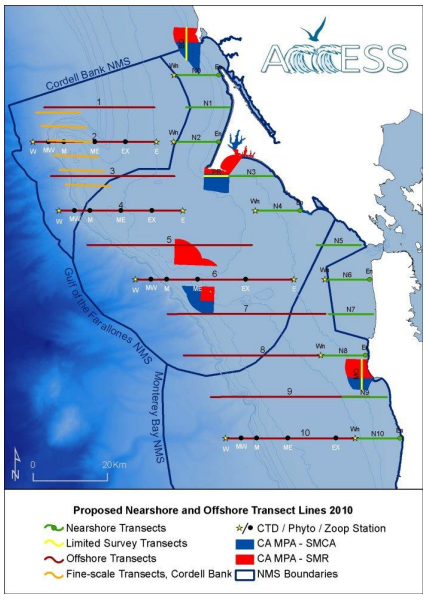
May 2010



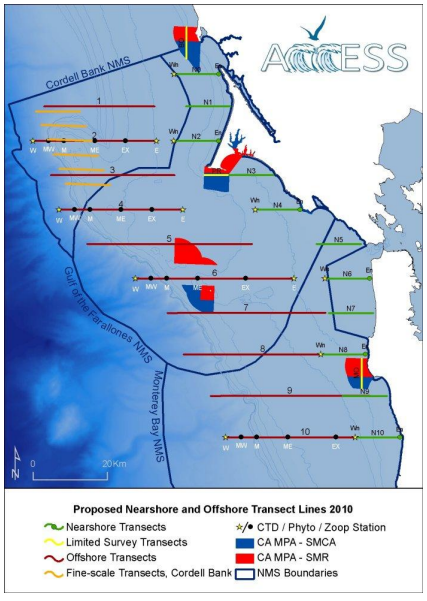
July 2010



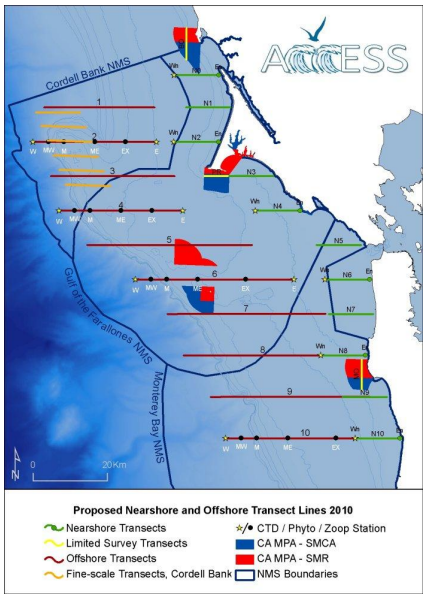
September 2010



May 2011



July 2011



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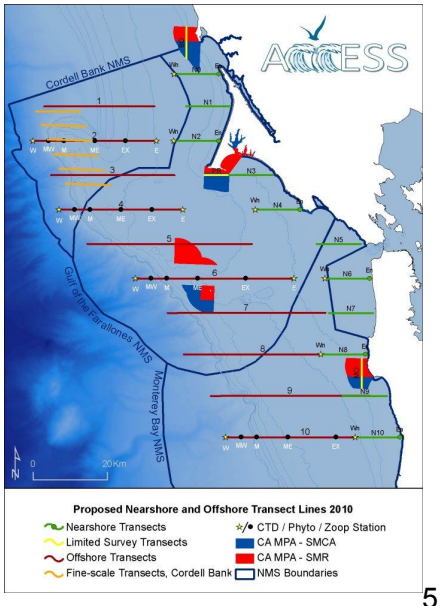
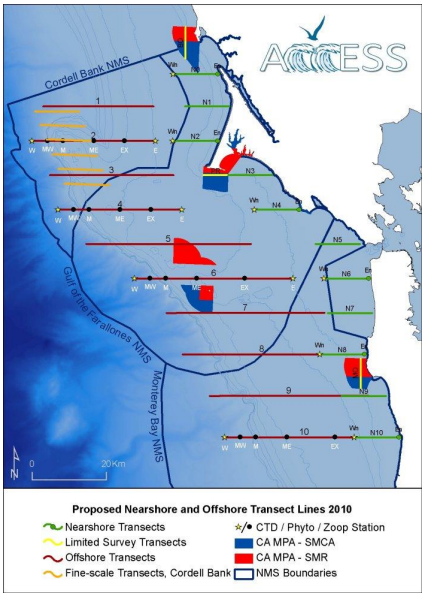
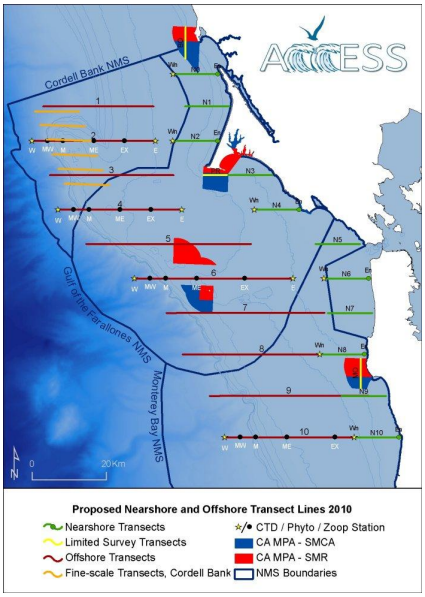


May 2012



July 2012



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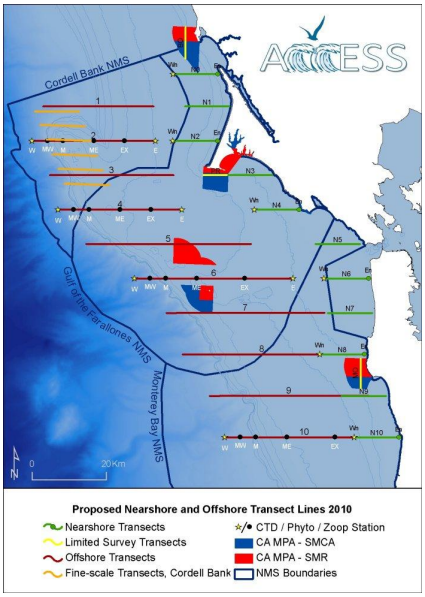


Name

Picture

About: **Photos:** **Video:** **Family:** **(Find other seabirds in the class that are in the same family as your seabird)** **Friends:** **(Find other seabirds in the class that are in the bay area at the same time as your seabird)** **Places:** **(Range Map)** **Sound:** **(A recording of your seabird call)**	**3 Status Updates: (Threats, behaviors, conservation work, cool facts)**

Surf Scoter

About:

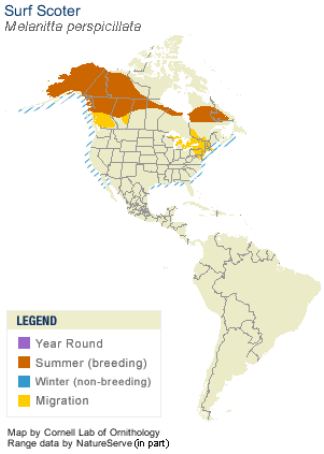
Photos:

Video:

Family:

Friends:

Places:



Sound:
http://www.allaboutbirds.org/guide/surf_scoter/id

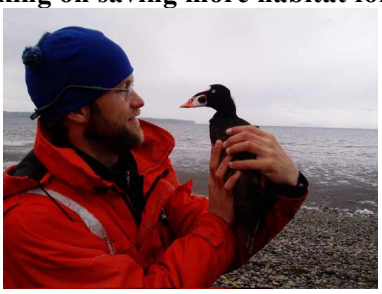
Status Updates:

2013

The hatchlings are ready. It's time to head to the Pacific Ocean for winter.

2010

I got picked up by this graduate student, Eric Anderson, in Washington State the other day. He is working on saving more habitat for us.



2007

Not a good time to be in the Bay Area, there was a huge oil spill (58,000 gallons) and some of my cousins got stuck in the mess and didn't recover